

FIG. 1  
(Prior Art)

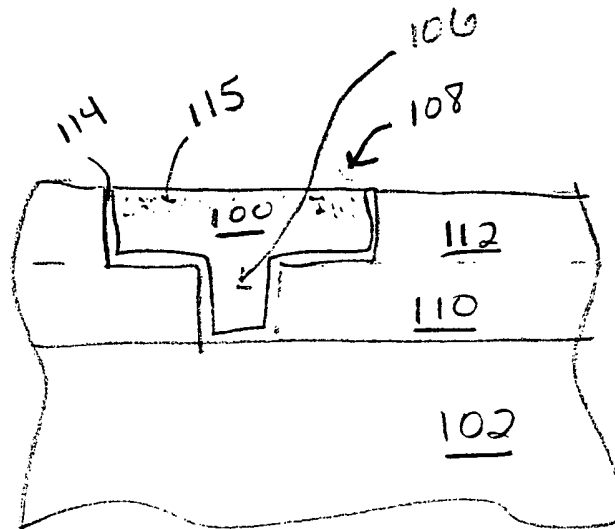


FIG. 2

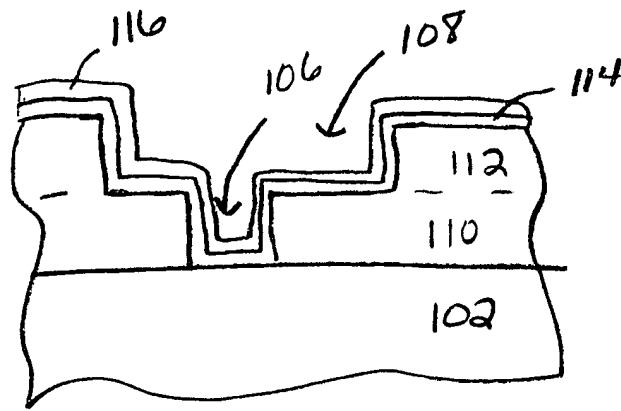


FIG. 3A

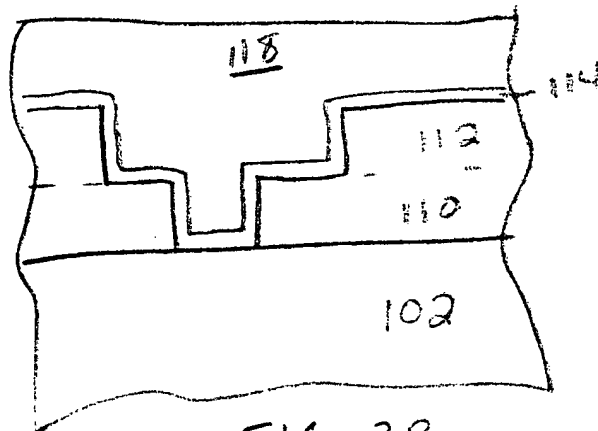


FIG. 3B

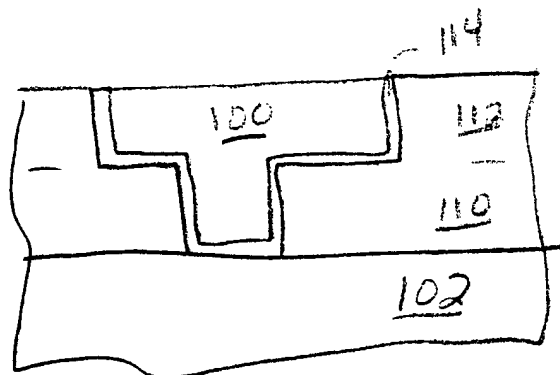


FIG. 3C

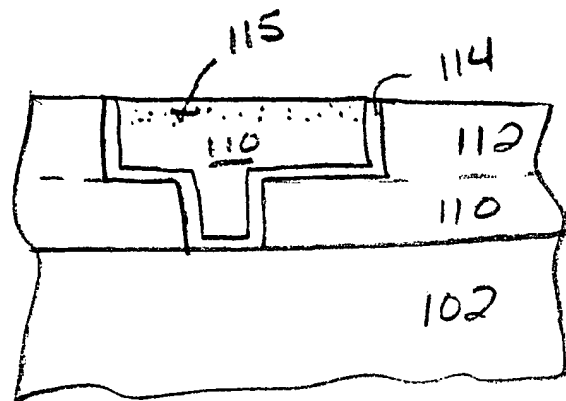


FIG. 3D

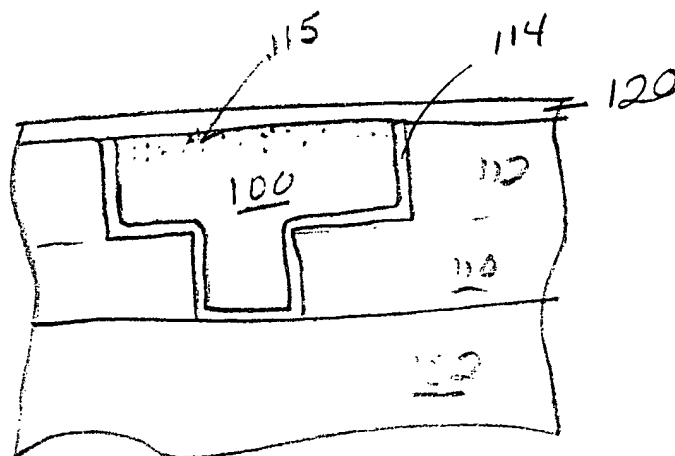


FIG. 3E

Doping the Cu surface with silicon improves the SiN-Cu interface strength...

## SiN-Cu Adhesion Energy

(4-Point Bend Testing)

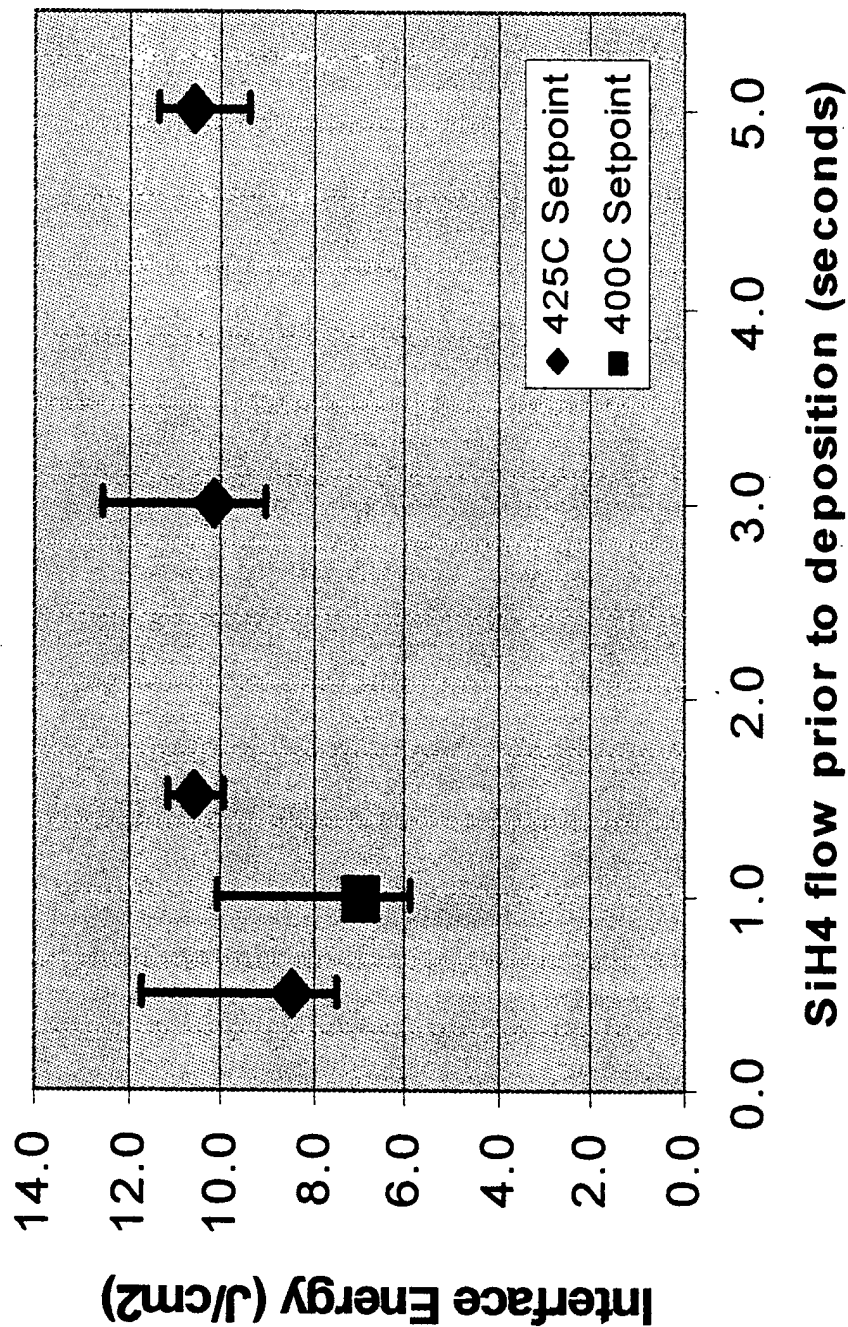


FIG. 6

TI-36238  
5096

# Via Stress Migration dependence on $\text{SiH}_4$ flow & Temperature

48 hr 150C N2 bake 5um Metal Width; 318 data points/split

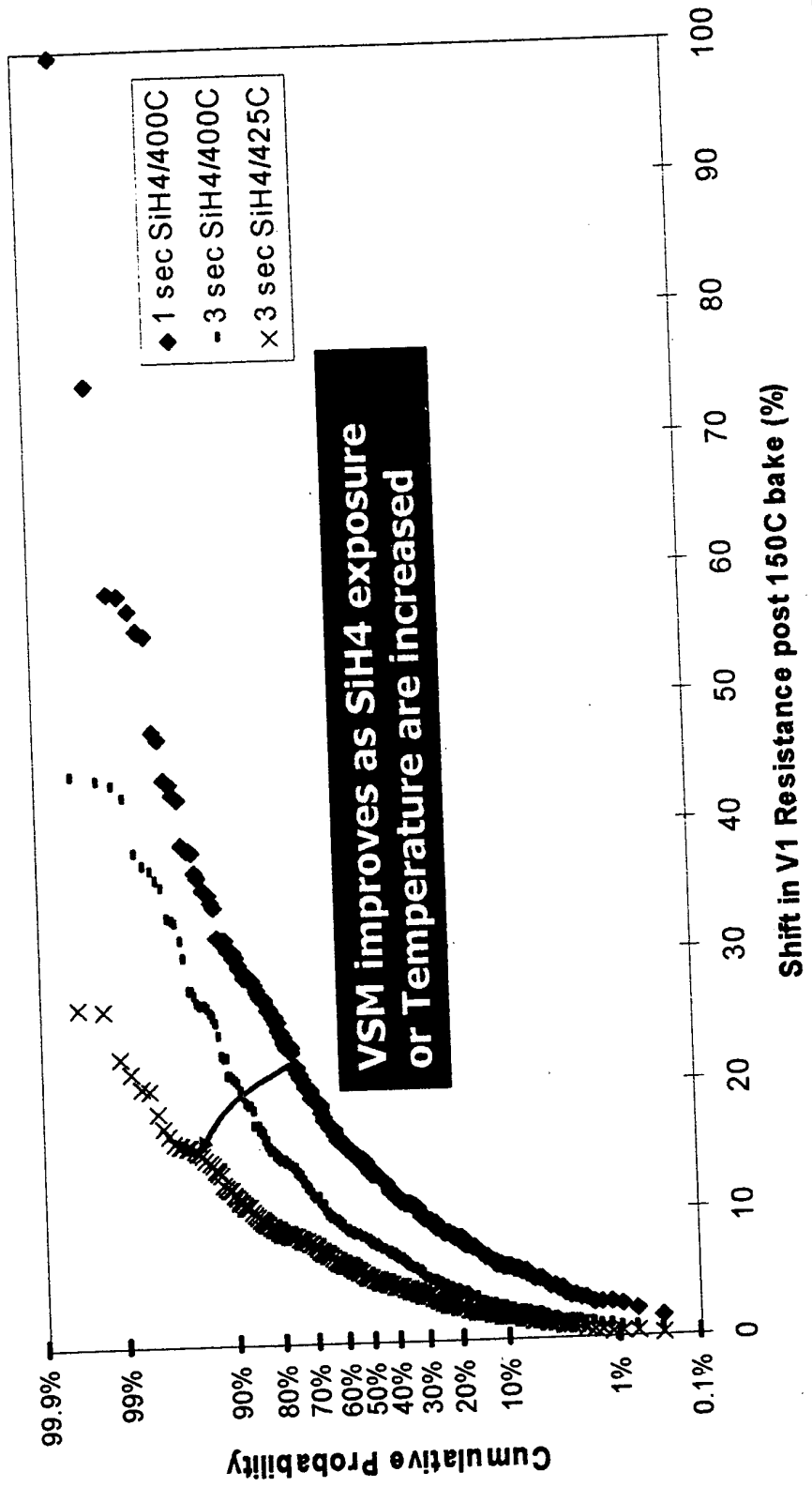


FIG. 5

71-36238  
40%

EM:@325C, 1.5MA/cm<sup>2</sup>

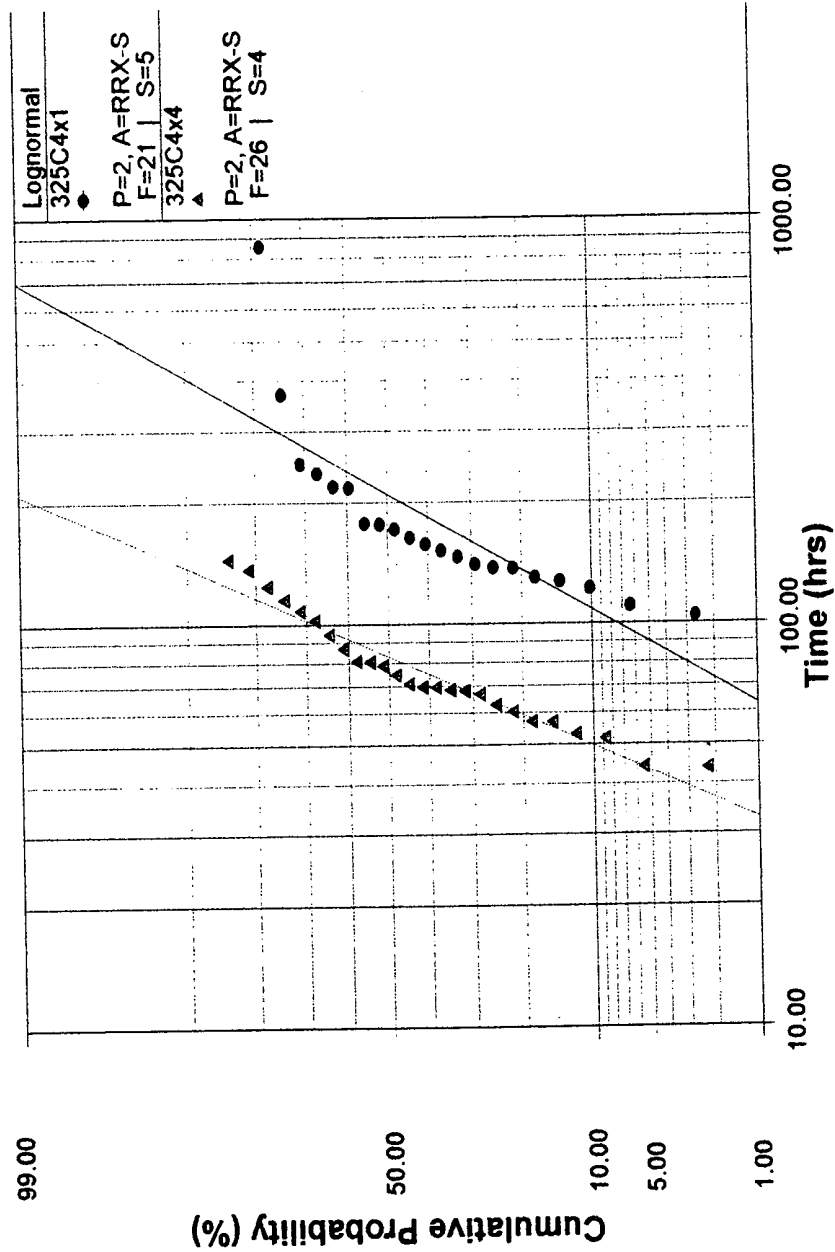


FIG. 4

$\mu_1=5.34, \sigma_1=0.52, \rho=0.82$   
 $\mu_2=4.42, \sigma_2=0.40, \rho=0.97$